

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number  
**WO 2004/052298 A3**

(51) International Patent Classification<sup>7</sup>: **C07D 498/02**,  
A61K 31/4353

R. [US/US]; 6232 Bret Hills Drive, Paradise Valley, AZ  
85253 (US). **MELODY**, Noleen [IE/US]; 7032 East In-  
digo Street, Mesa, AZ 85207 (US).

(21) International Application Number:  
PCT/US2003/039067

(74) Agent: **ROSENFELD, Susan, Stone**; Fennemore Craig,  
3003 North Central, Suite 2600, Phoenix, AZ 85012-2913  
(US).

(22) International Filing Date: 9 December 2003 (09.12.2003)

(25) Filing Language: English

(81) Designated States (*national*): CA, JP, US.

(26) Publication Language: English

(84) Designated States (*regional*): European patent (AT, BE,  
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

(30) Priority Data:  
60/432,219 9 December 2002 (09.12.2002) US

**Declarations under Rule 4.17:**

(71) Applicant (*for all designated States except US*): **ARI-  
ZONA BOARD OF REGENTS**, a body corporate of the  
State of Arizona, acting for and on behalf of **ARIZONA  
STATE UNIVERSITY** [US/US]; Box 879209, Tempe,  
AZ 85287 (US).

— *as to applicant's entitlement to apply for and be granted a  
patent (Rule 4.17(ii)) for the following designations CA, JP,  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,  
SI, SK, TR)*

— *of inventorship (Rule 4.17(iv)) for US only*

(72) Inventors; and

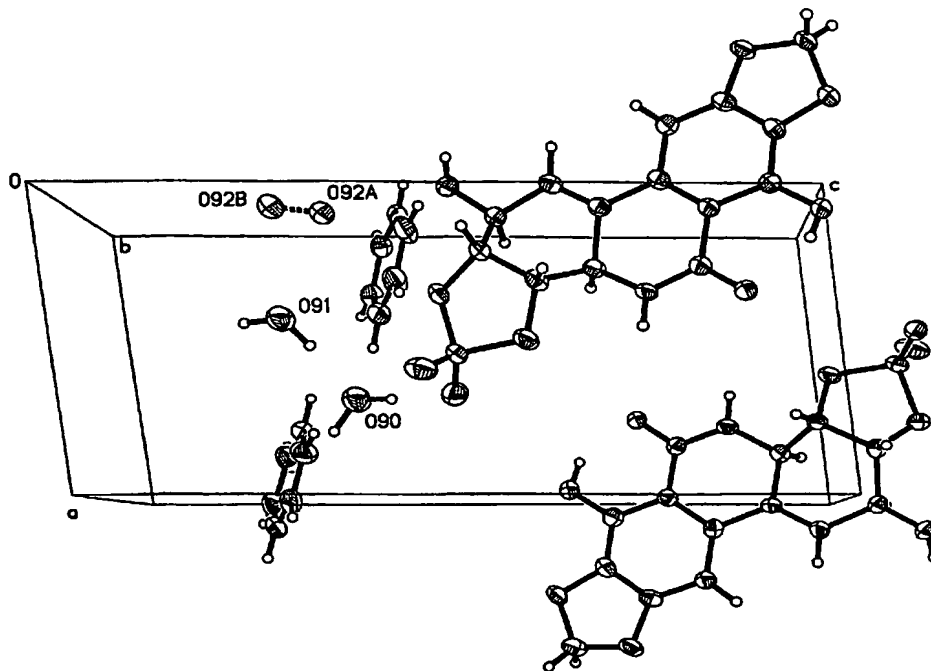
**Published:**

(75) Inventors/Applicants (*for US only*): **PETTIT, George**,

— *with international search report*

[Continued on next page]

(54) Title: **NARCISTATIN PRODRUGS**



(57) Abstract: The present invention provides prodrugs derived from the sparingly soluble anticancer isocarbostryl narciclasine, a component of various *Narcissus* species, said prodrugs having potential for use against animal and human cancers. Also disclosed is an efficient procedure for the synthetic conversion of narciclasine to several more soluble cyclic phosphate compounds, including "narcistatin".

WO 2004/052298 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(88) **Date of publication of the international search report:**  
30 September 2004

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/39067

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07D 498/02; A61K 31/4353.

US CL : 546/90; 514/291.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 546/90; 514/291.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	J. Nat. Prod., (Pettit et al.), 66:92-96, 2003, page 92.	1-2
Y, P	J. Nat. Prod., (Pettit et al.), 66:92-96, 2003, page 92.	3-4

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

25 March 2004 (25.03.2004)

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Date of mailing of the international search report

06 AUG 2004

Authorized officer

Robert Shiao

Telephone No. (571) 272-0707